

# ***Post-Construction Assessment Report***

*U.S. Army Corps of Engineers Permit No. 200200950*

**2014**

## **Lowe's Home Centers Regional Distribution Center Plainfield, CT**



**MA** **MASON & ASSOCIATES, INC.**  
*Environmental Consulting & Projects*  
771 Plainfield Pike, North Scituate, Rhode Island 02857 Telephone (401) 647-3835

**POST-CONSTRUCTION ASSESSEMENT**

**LOWE'S HOME CENTERS REGIONAL DISTRIBUTION CENTER**

**Plainfield, Connecticut**

January, 2014

**Submitted to:**

U.S. Army Corps of Engineers-New England District  
Regulatory Division  
696 Virginia Road  
Concord, MA 01742-2751

**Prepared for:**

Lowe's Home Centers, Inc.  
Post Office Box 1111  
North Wilkesboro, NC 28656

**Prepared by:**

Mason & Associates, Inc.  
771 Plainfield Pike  
North Scituate, RI 02857

# CONTENTS

	Page
1.0 Introduction .....	1
2.0 Mitigation Goals.....	1
2.1 Mitigation Site Acreage .....	2
2.2 Functions and Values .....	2
2.3 Corps Success Standards .....	3
3.0 Problems and Solutions .....	7
4.0 Review of Agency Procedures and Policies .....	8
5.0 Recommended Measures .....	8
6.0 Conclusions .....	8

## References

## Figures

Figure 1 – Site Location

## Tables

Table 1 – Vegetation List 2013

Table 2 – Wildlife

## Appendices

APPENDIX A - Functions and Values Assessment

APPENDIX B - Wetland Area Calculation

APPENDIX C - Comparison of Constructed and Proposed Wetlands

APPENDIX D - Site Photographs

# POST-CONSTRUCTION ASSESSEMENT

## LOWE'S HOME CENTERS REGIONAL DISTRIBUTION CENTER

Plainfield, Connecticut

### 1.0 Introduction

This report presents a post-construction assessment of the conditions of the mitigation sites at the Lowe's Home Centers Regional Distribution Center (Lowe's RDC) in Plainfield, Connecticut (Figure 1). This assessment has been prepared on behalf of Lowe's Home Centers, LLC, in accordance with the U.S. Army Corps of Engineers (ACOE) permit for the project (Permit No. 200200950).

### 2.0 Mitigation Goals

The intent of the Lowe's RDC mitigation project was to replace lost wetland functions and values and to preserve and enhance upland habitat and state endangered species habitat. As excerpted from the Annual Monitoring Reports, six specific mitigation goals were defined for this project:

- 1) Establish new wetlands and enhance degraded wetlands so they have the functions and values of those filled by construction of the RDC and the Town access road.
- 2) Provide enhancement to the upland habitats on-site to create additional area suitable for use by the state-threatened and endangered amphibians identified at the site.
- 3) Provide preservation of undeveloped lands within the Mill Brook watershed.
- 4) Provide enhancement of wetlands (i.e., the off-site Atlantic white cedar bog) in the Mill Brook watershed.
- 5) Collect and report additional data on the distribution of threatened and endangered species (i.e., the Spadefoot Toad (*Scaphiopus holbrookii*) and Blue-spotted Salamander (*Ambystoma laterale*)).
- 6) Conduct conservation activities that will lead to increased quality or quantity of habitat suitable to the warm season grassland birds observed using the site.

Mason & Associates staff assessed the level of attainment of mitigation goals 1 and 2 above by evaluating mitigation sites according to their size (acres), functions and values (Tables 1 and 2, Appendix A), and how well they met Corps success standards.

## **2.1 Mitigation Site Acreage**

Mason & Associates, Inc. (M&A) performed site investigations on November 4, 11, and 20, 2013. Wetland boundary data was collected with a Trimble GeoXT GPS. Graphical representation of the calculated area of wetlands in each mitigation site and the ACOE wetland edge delineation data forms are included in Appendix B. The comparison of the area and extent of delineated constructed wetlands with the area and extent of created wetlands proposed in the mitigation plan is included in Appendix C. The wetland edges have not been updated since the 2009 Annual Report. Photographs taken at several photostations are included in Appendix D. The following represents the approximate area calculations based on the M&A site investigation and data collection:

### Wetland Mitigation Area ONSW-1

The proposed total wetland mitigation area in the Final Mitigation Plan (MACTEC, 2003) for ONSW-1 was 3.40 acres. The area calculation by Normandeau Associates, Inc. from the 2009 Annual Monitoring Report (Normandeau, 2010) is 3.07 acres. The M&A area calculation resulting from the November, 2013 site investigations is 3.30 acres.

The majority of the wetland is Palustrine Emergent. The shrubs observed within the planned PSS area are healthy and will expect to become the dominant community within the PSS zone over time.

### Wetland Mitigation Area ONSW-2

The proposed total wetland mitigation area (Final Mitigation Plan, MACTEC, 2003) for ONSW-2 was 1.95 acres. The total area calculation by Normandeau Associates, Inc. in the 2009 Annual Monitoring Report (Normandeau, 2010) is 1.59 acres. The M&A total area calculation resulting from the November, 2013 site investigations is 1.70 acres.

The M&A total acreage of ONSW-1 and ONSW-2 is 5.00 acres. When this total is inserted into Table 3 of the Normandeau 2009 Annual Monitoring Report, the current total area calculations based on the M&A field delineation show that the net gain of wetlands onsite fall short just 0.04 acres of the total amount of wetlands proposed in the Final Mitigation Plan (MACTEC, 2003), thus in effect reaching the goal of 2.45 acres.

The majority of the wetland is Palustrine Emergent. The shrubs observed within the planned PSS area are healthy and will expect to become the dominant community within the PSS zone over time.

## **2.2 Functions and Values**

The functions and values lost by filling wetlands A, B, D, E, F, I, J, L, Access Road Wetland B and Access Road Wetland C were evaluated in the Final Mitigation Plan (MACTEC, 2003). The

primary functions and values lost were sediment/toxicant retention and wildlife habitat. Other functions and values that were lost through filling of the wetlands were groundwater recharge/discharge, production export, floodflow alterations and nutrient removal. The filled wetland areas were not found to have fish and shellfish habitat, sediment/shoreline stabilization, recreation, educational/scientific values, uniqueness/heritage, visual quality/aesthetics or endangered species habitat functions and values.

The ACOE Highway Methodology wetland function and value evaluation forms have been prepared (Appendix A). The principal functions and values that are present in wetland mitigation areas ONSW-1 and ONSW-2 appear to be sediment/toxicant retention, wildlife habitat and nutrient removal. Several small mammal holes and numerous wildlife trails were observed in both ONSW-1 and ONSW-2. Other functions and values that are present in both ONSW-1 and ONSW-2 include groundwater recharge/discharge, production export, floodflow alteration, educational/scientific values, uniqueness/heritage and visual quality/aesthetics. The mitigation wetlands do not appear to provide fish and shellfish habitat (no fish or shellfish observed), sediment/shoreline stabilization or recreation (private property) functions and values.

The mitigation wetlands have become well established and appear to provide more functions and values than of those wetlands that were filled.

## 2.3 Corps Success Standards

M&A has reviewed the wetland mitigation areas for how well the success standards were met. Wetland areas ONSW-1 and ONSW-2 have met the vast majority of standards for success. A brief description of each mitigation area's success follow.

### ONSW-1

*1.) Does the site have at least 500 trees and shrubs per acre, of which at least 350 per acre are trees for proposed forested cover types, that are healthy and vigorous and are at least 18" tall in 75% of each planned woody zone and at least the following number of non-exotic species including planted and volunteer species?*

*Volunteer species should support functions consistent with the design goals. To count a species, it must be well represented on the site (e.g., at least 50 individuals of that species per acre).*

<i># species planted</i>	<i>minimum # species required (volunteer and planted)</i>
2	2
3	3
4	3

5	4
6	4
7	5
8	5
9 or more	6

According to the 2009 Annual Monitoring Report (Normandeau, 2009), the PFO portion of the mitigation area failed to meet the standard due to high mortality of red maple (*Acer rubrum*) (no red maple specimens were found by M&A). A field count of individual species was conducted by Mason & Associates, Inc. in the PSS area. A total of 261 shrubs were counted (based on the 0.71 acres of planned PSS in the Final Mitigation Plan (MACTEC, 2003), 355 stems are needed to meet the 500 trees and shrubs/acre standard). Field investigations in November when die-off has occurred make observations difficult within tall emergent vegetation; however, the 2009 Annual Report notes that the standard for the planned PSS portion was met according to the detailed PSS data plot information. Additional shrubs are located within the PEM portion of the wetland. Six species of shrubs were planted, therefore the minimum # required (volunteer and planted) is 4. Field observations show us there are 14 species of trees and shrubs. Based on the area of 0.71 acre for species to be well represented, 36 shrubs per species would be needed. At present there are 3 species (*Cephalanthus occidentalis*, *Cornus amomum*, and *Rubus sp.*) that have more than 36 shrubs in this mitigation area. All of the trees and shrubs observed appear healthy and growing. A palustrine shrub wetland should be well established in 10 to 15 years.

2.) Does each mitigation site have at least 80% areal cover, excluding planned open water areas or planned bare soil areas (such as for turtle nesting), by noninvasive species? Do planned emergent areas on each mitigation site have at least 80% cover by noninvasive hydrophytes? Do planned scrub-shrub and forested cover types have at least 60% cover by noninvasive hydrophytes, of which at least 15% are woody species?

Yes, based on field estimates (field observations were done late in the growing season after the first die-off), this mitigation site has over 80% (approximately 85-90%) areal cover of non-invasive species and the planned scrub-shrub cover type has at least 60% cover by non-invasive hydrophytes, of which 15% are woody species.

3.) Are common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*), Russian and autumn olive (*Elaeagnus spp.*), buckthorn (*Rhamnus frangula*), and/or multiflora rose (*Rosa multiflora*) plants at the mitigation site(s) being controlled?

Common reed, buckthorn, and reed canary grass were not observed within the wetland. Purple loosestrife, multiflora rose and autumn olive are present, but were estimated to be less than 1% total cover and appear to be controlled at this time.

4.) *Are all slopes, soils, substrates, and constructed features within and adjacent to the mitigation site(s) stabilized?*

All slopes, soils and substrates within and adjacent to the wetland mitigation site are stabilized by vegetation and are not eroding.

#### ONSW-2

1.) *Does the site have at least 500 trees and shrubs per acre, of which at least 350 per acre are trees for proposed forested cover types, that are healthy and vigorous and are at least 18" tall in 75% of each planned woody zone and at least the following number of non-exotic species including planted and volunteer species?*

*Volunteer species should support functions consistent with the design goals. To count a species, it must be well represented on the site (e.g., at least 50 individuals of that species per acre).*

<i># species planted</i>	<i>minimum # species required (volunteer and planted)</i>
2	2
3	3
4	3
5	4
6	4
7	5
8	5
9 or more	6

According to the 2009 Annual Monitoring Report (Normandeau, 2009), this wetland met the standard within the PSS portion. The late-season field count conducted by Mason & Associates, Inc. revealed 218 trees and shrubs within the PSS portion of the wetland (based on the 0.44 acres of planned PSS in the Final Mitigation Plan (MACTEC, 2003), 220 stems are needed to meet the 500 trees and shrubs/acre standard). Six species of shrubs were planted, therefore the minimum number required (volunteer and planted) is 4. Field observations show us there are 9 species of hydrophytic trees and shrubs. Based on the area of .44 acre for species to be well represented, 22 shrubs per species would be needed. At present there are 4 species (*Cephalanthus occidentalis*, *Cornus amomum*, *Salix sp.*, and *Populus deltoides*) that have more than 22 shrubs in this mitigation area. All of the shrubs observed appear healthy and growing. A palustrine shrub wetland should be well established in 10 to 15 years. No forested cover type was proposed.

2.) *Does each mitigation site have at least 80% areal cover, excluding planned open water areas or planned bare soil areas (such as for turtle nesting), by noninvasive species? Do planned*



*emergent areas on each mitigation site have at least 80% cover by noninvasive hydrophytes? Do planned shrub-shrub and forested cover types have at least 60% cover by noninvasive hydrophytes, of which at least 15% are woody species?*

Yes, based on field estimates (field observations were done late in the growing season after the first die-off), this mitigation site has over 80% (approximately 95%) areal cover of non-invasive species and the planned scrub-shrub cover type has at least 60% cover by non-invasive hydrophytes, of which 15% are woody species.

*3.) Are common reed (Phragmites australis), purple loosestrife (Lythrum salicaria), Russian and autumn olive (Elaeagnus spp.), buckthorn (Rhamnus frangula), and/or multiflora rose (Rosa multiflora) plants at the mitigation site(s) being controlled?*

Common reed, buckthorn, reed canary grass were not observed within the wetland. Purple loosestrife, autumn olive, and multiflora rose are present, but at less than 1% total cover (less than 10 stems total counted).

*4.) Are all slopes, soils, substrates, and constructed features within and adjacent to the mitigation site(s) stabilized?*

All slopes, soils and substrates within and adjacent to the wetland mitigation site is stabilized by vegetation and are not eroding.

For both mitigation wetlands:

*5.) At least 85 percent of the wetland mitigation area's functions and values will successfully replace the "pre-existing" primary wetland functions and values (i.e., those impacted).*

At least 85% of the wetland mitigation area's functions and values appear to be replacing the pre-existing primary wetland functions and values. M&A has found several functions and values that were not present prior to the construction of ONSW-1 and ONSW-2 to either now be present, or have the potential to be present, within these wetlands. Appendix A includes the Highway Methodology wetland function and value evaluation forms.

#### Upland Reforestation Area West of ONSW-1

The *Summary of Completed and Proposed Corrective Actions (January 2011)* notes in recommendation #5 that "Although 4 [of 19] plots did not meet the [300 stems/acre] standard, the average stems per acre recorded in the 19 plots was 496 which exceeds the goal of 300 stems/acre by 196 stems". Upland forest species are well established and appear to meet the 300 stems per acre standard by field estimation. The planted species, white pine (*Pinus strobus*), black cherry (*Prunus serotina*), white oak (*Quercus alba*), choke cherry (*Prunus*

*virginiana*) and eastern red cedar (*Juniperus virginiana*) are healthy, with the dominant plantings observed being white oak, white pine and eastern red cedar. These species maintain an average height of 10 feet, and some white pine trees are approximately 15 feet tall. Some invasive species were noted in this area and include autumn olive (*Elaeagnus umbellata*) and Asiatic bittersweet (*Celastrus orbiculatus*). However, these species are estimated to be at an occurrence of less than 3% by field estimation. The upland reforestation provides excellent food and cover for observed passerine species, eastern cottontail and white-tail deer.

#### Infiltration Basin - 1 (IB-1)

Infiltration Basin 1 contains numerous transplanted eastern cottonwood (*Populus deltoides*) that appear healthy. The 2009 Annual Monitoring Report (Normandeau, 2010) states that approximately 300 - 400 autumn olive shrubs were removed and disposed of from IB-1 in 2007. Although there are specimens of autumn olive occurring within IB-1, their numbers are low and appear to be controlled; however, further removal actions should be considered in the future. IB-1 appears to provide good habitat for avian and mammal species. An American woodcock (*Scolopax minor*) was flushed and several small mammal scat and wildlife trails were observed during the M&A site investigation.

### **3.0 Problems and Solutions**

As described in the 2009 Annual Monitoring Report (Normandeau, 2010), the planned forested wetland (PFO) area in the southwestern portion of ONSW-1 was not graded properly. This area was also not determined to be wetland by M&A and red maple was not observed in ONSW-1. The report notes that high mortality of red maple occurred from severe deer browse in ONSW-1 in 2006.

Autumn olive remains an aggressive invasive species in Connecticut. The applicant has made efforts to control this species, and others, in the wetland mitigation areas and IB-1. Future annual control of invasive species should be considered to control their spread within the mitigation areas.

Narrow-leaved cattail is present in ONSW-1 and ONSW-2. In ONSW-1, cattail appears to be present in approximately 15 - 25% of the entire wetland by field estimation. A reason for its low occurrence in ONSW-1 may be the presence of muskrat. In ONSW-2, it was field estimated to cover approximately 60% of the wetland.

## **4.0 Review of Agency Procedures and Policies**

There were no policies or procedures used by the U.S. Corps of Engineers that encumbered implementing the mitigation after approval of the permit. Annual communication with the Corps Project Manager via email and phone assisted in not having idle years with no activity. As of the date of the document, all of the mitigation actions listed in the Final Mitigation Plan dated September 2003 have been completed with the exception of a monetary payment of \$50,000 for the purpose of grassland habitat preservation. Lowe's is prepared to make the payment, however, Connecticut Department of Energy and Environmental Protection personnel is being unresponsive to Lowe's effort to make the payment.

## **5.0 Recommended Measures**

Controlling invasive species found to be present (autumn olive, multiflora rose, Asiatic bittersweet, purple loosestrife) within ONSW-1, ONSW-2, the reforestation area west of ONSW-1 and in IB-1 will allow these habitats to be healthy ecosystems and continue providing functions and values described in this report. This should remain a long-term goal of Lowe's. These species occur at relatively low abundances, and by incorporating an 'early detection-rapid response' control strategy in these areas the mitigation areas will have continued long-term success.

## **6.0 Conclusions**

The assessment performed by M&A concurs with the 2009 Annual Monitoring Report's (Normandeau, 2010) conclusion that the mitigation wetlands (ONSW-1 and ONSW-2) at the Lowe's Distribution Center in Plainfield, Connecticut, have effectively replaced the functions and values lost by filling the impacted wetlands. The mitigation wetlands encompass a total of 5.00 acres and have met the proposed total net gain. They appear to be functioning well and provide excellent wildlife habitat. The upland reforested area west of ONSW-1 and the Infiltration basin (IB-1) also appear to be functioning as designed and provide good wildlife habitat. The reforestation area is filling in very well with white pine, red cedar and white oak that are healthy and now approximately 10 to 15 feet high.

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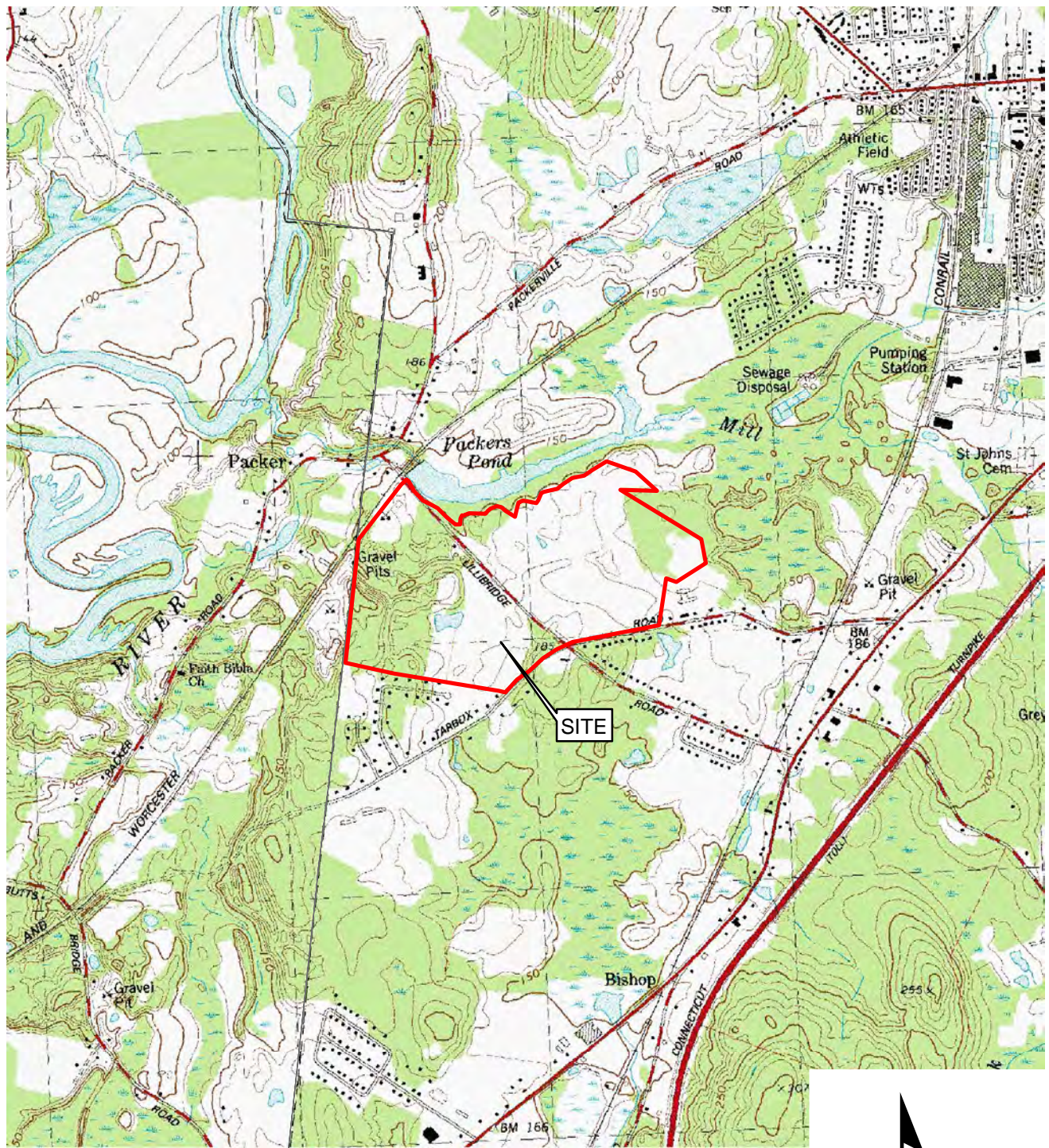
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([www.fws.gov/wetlands/Data/Mapper.html](http://www.fws.gov/wetlands/Data/Mapper.html))

## **FIGURES**

Figure 1 – Site Location



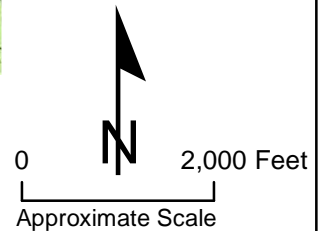


Source: CTDEP 7.5 Minute Quadrangles 1986

Approximate Location of:



Property Boundaries



Lowe's Wetland Mitigation Assessment  
Plainfield, Connecticut

**M** **MASON & ASSOCIATES, INC.**  
Environmental Consulting & Projects  
771 Plainfield Pike, North Scituate, Rhode Island 02857

## SITE LOCATION

Project No. 131004

Figure 1

## **TABLES**

Table 1 – Vegetation List 2013

Table 2 – Wildlife

**Table1. Vegetation Observed November 2013**  
**Lowe's Home Centers, Inc - Northeast Regional Distribution Center**

<b>Species Name</b>	<b>Common Name</b>	<b>*Indicator Status</b>	<b>ONSW-1</b>	<b>ONSW-2</b>
<i>Alisma subcordatum</i>	water plantain	OBL	x	
<i>Alnus sp.</i>	alder	var.		x
<i>Asclepias incarnata</i>	swamp milkweed	OBL	x	
<i>Bidens frondosa</i>	devil's-pitchfork	FACW	x	
<i>Boehmeria cylindrica</i>	false nettle	OBL	x	
<i>Carex crinita</i>	fringed sedge	OBL		x
<i>Carex lupulina</i>	hop sedge	OBL	x	
<i>Carex lurida</i>	sallow sedge	OBL	x	x
<i>Carex stricta</i>	tussock sedge	OBL	x	x
<i>Celastrus orbicultatus</i>	bittersweet, asiatic	UPL	edge	edge
<i>Cephalanthus occidentalis</i>	buttonbush	OBL	x	x
<i>Clethra alnifolia</i>	coastal sweet-pepperbush	FAC	x	x
<i>Cornus alba</i>	red-osier dogwood	FACW	x	x
<i>Cornus amomum</i>	silky dogwood	FACW	x	x
<i>Dulichium arundinaceum</i>	three way sedge	OBL	x	
<i>Elaeagnus umbellata</i>	autumn olive	UPL	x	x
<i>Epilobium palustre</i>	marsh willowherb	OBL	x	
<i>Eupatorium perfoliatum</i>	boneset	FACW	x	x
<i>Eutrochium purpureum</i>	Joe-pye weed	FAC	x	x
<i>Impatiens capensis</i>	jewelweed	FACW	x	x
<i>Juncus canadensis</i>	Canada rush	OBL	x	
<i>Juncus effusus</i>	soft rush	OBL	x	x
<i>Juncus marginatus</i>	grassleaf rush	FACW	x	
<i>Juniperus virginiana</i>	red cedar	FACU	x	
<i>Lemna sp.</i>	duckweed	var.	x	x
<i>Leersia oryzoides</i>	rice cutgrass	OBL	x	x
<i>Lonicera japonica</i>	Japanese honeysuckle	FACU	x	
<i>Ludwigia palustris</i>	water purslane	OBL	x	x
<i>Lythrum salicaria</i>	purple loosestrife	OBL	x	
<i>Nymphaea odorata</i>	American white water-lily	OBL	x	
<i>Onoclea sensibilis</i>	sensitive fern	FACW	x	x
<i>Panicum dichotomiflorum</i>	fall panic grass	FACW	x	x
<i>Penthorum sedoides</i>	ditch stonecrop	OBL		x
<i>Persicaria arifolia</i>	halberd-leaf tearthumb	OBL		x
<i>Persicaria hydropiperoides</i>	swamp smartweed	OBL		x
<i>Phalaris arundinacea</i>	reed canary grass	FACW	x	



**Table1. Vegetation Observed November 2013**  
**Lowe's Home Centers, Inc - Northeast Regional Distribution Center**

<b>Species Name</b>	<b>Common Name</b>	<b>*Indicator Status</b>	<b>ONSW-1</b>	<b>ONSW-2</b>
<i>Polygonum sp.</i>	smartweed	var.	<b>x</b>	<b>x</b>
<i>Polygonum scandans</i>	climbing false buckwheat	UPL		<b>x</b>
<i>Populus tremuloides</i>	quaking aspen	FACU	<b>x</b>	<b>x</b>
<i>Quercus alba</i>	white oak	FACU		<b>x</b>
<i>Rosa multiflora</i>	multiflora rose	FACU	<b>x</b>	<b>x</b>
<i>Rubus allegheniensis</i>	allegheny blackberry	FACU		<b>x</b>
<i>Rubus sp.</i>	raspberry	variable	<b>x</b>	
<i>Salix discolor</i>	pussy willow	FACW	<b>x</b>	<b>x</b>
<i>Schoenoplectus pungens</i>	three-square	OBL	<b>x</b>	<b>x</b>
<i>Schoenoplectus tabernaemontani</i>	soft-stem club-rush	OBL	<b>x</b>	<b>x</b>
<i>Scirpus cyperinus</i>	cottongrass bulrush	OBL	<b>x</b>	<b>x</b>
<i>Scirpus expansus</i>	woodland bulrush	OBL	<b>x</b>	<b>x</b>
<i>Scutellaria laterifolia</i>	mad dog skullcap	OBL	<b>x</b>	
<i>Solidago gigantea</i>	giant goldenrod	FACW	<b>x</b>	
<i>Solidago rugosa</i>	wrinkleleaf goldenrod	FAC	<b>x</b>	
<i>Solidago spp.</i>	goldenrod	var.	<b>x</b>	<b>x</b>
<i>Sphagnum sp.</i>	sphagnum moss	OBL	<b>x</b>	<b>x</b>
<i>Spiraea tomentosa</i>	Steeplebush	FACW	<b>x</b>	
<i>Symphyotrichum dumosum</i>	rice button American-aster	FAC		<b>x</b>
<i>Typha angustifolia</i>	Narrow-leaved Cattail	OBL	<b>x</b>	<b>x</b>
<i>Ulmus americana</i>	American elm	FACW	<b>x</b>	
<i>Vaccinium corymbosum</i>	highbush blueberry	FACW	<b>x</b>	<b>x</b>
<i>Verbascum thapsus</i>	commom mullein	UPL	<b>x</b>	
<i>Verbena hastata</i>	blue vervain	FACW	<b>x</b>	
<i>Viburnum opulus</i>	highbush cranberry	FACW	<b>x</b>	<b>x</b>
<i>Viola sp.</i>	violet	var.	<b>x</b>	
<p>Notes: All listed species were observed on November 4, 15, and 20 2013. Several other specimens were observed, but were not positively identified due to the late season die-off.</p> <p align="right"><b>*USACOE CT 2013 State Wetland Plant List</b></p>				

**Table 2. Wildlife Observations  
Lowe's Home Centers  
Regional Distribution Center**

		<u>Location</u>			
Scientific Name	Common Name	ONSW-1	ONSW-2	Reforestation Area West of ONSW-1	IB-1
<u><b>Dragonflies &amp; Damselflies</b></u>					
<i>Sympetrum rubicundulum</i>	Ruby Meadowhawk	✓			
<u><b>BIRDS</b></u>					
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	✓	✓		
<i>Buteo jamaicensis</i>	Red-tailed Hawk	✓			
<i>Buteo platypterus</i>	Broad-winged Hawk		✓		
<i>Cardinalis cardinalis</i>	Northern Cardinal		✓		
<i>Carduelis tristis</i>	American Goldfinch	✓	✓	✓	
<i>Corvus brachyrhynchos</i>	American Crow	✓		✓	
<i>Cyanocitta cristata</i>	Blue Jay	✓	✓	✓	✓
<i>Junco hyemalis</i>	Dark-eyed Junco	✓	✓	✓	✓
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker		✓	✓	
<i>Meleagris gallopavo</i>	Wild Turkey				
<i>Melospiza melodia</i>	Song Sparrow	✓	✓	✓	✓
<i>Parus atricapillus</i>	Black-capped Chickadee	✓	✓	✓	✓
<i>Parus bicolor</i>	Tufted Titmouse		✓	✓	✓
<i>Picoides pubescens</i>	Downy Woodpecker				✓
<i>Turdus migratorius</i>	American Robin	✓	✓	✓	✓
<i>Zonotrichia albicollis</i>	White Throated Sparrow		✓	✓	
<u><b>MAMMALS</b></u>					
<i>Condylura cristata</i>	Star-nosed Mole	✓			
<i>Odocoileus virginianus</i>	White-tailed Deer	✓	✓	✓	✓
<i>Ondatra zibethicus</i>	Common Muskrat	✓			
<i>Sciurus carolinensis</i>	Eastern Gray Squirrel			✓	
<i>Scolopax minor</i>	American woodcock				✓
<i>Sylvilagus floridanus</i>	Eastern Cottontail	✓		✓	✓
<i>Tamias striatus</i>	Eastern Chipmunk			✓	
✓    Animals observed November 4, 11 and 20, 2013					

## **APPENDIX A**

### **Functions and Values Assessment**














# Wetland Function-Value Evaluation Form

Wetland I.D. ONSW-1  
 Latitude 11.659708 Longitude -71.945552  
 Prepared by: SM (MMA) Date 11/15/13  
 Wetland Impact:  
 Type Fill Area 0.47 Ac  
Wetlands A & B

Evaluation based on:  
 Office ☒ Field ☒  
 Corps manual wetland delineation completed? Y ☒ N ☐

Total area of wetland 330 Ac Human made? yes Is wetland part of a wildlife corridor? yes or a "habitat island"? 200' E to boat's way  
 Adjacent land use Reforestation, Commercial residential, isolated wetland Distance to nearest roadway or other development 350' SW to Douglas Dr.  
 Dominant wetland systems present PABHx, PEMIF/E Contiguous undeveloped buffer zone present yes  
 Is the wetland a separate hydraulic system? yes If not, where does the wetland lie in the drainage basin?   
 How many tributaries contribute to the wetland? none Wildlife & vegetation diversity/abundance (see attached list) with A Post-Construction Assessment Report

Function/Value Suitability Y N Rationale (Reference #)\* Principal Function(s)/Value(s) Comments

 Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		<u>2, 4, 15</u>	<input checked="" type="checkbox"/>	
 Floodflow Alteration	<input checked="" type="checkbox"/>		<u>6</u>		
 Fish and Shellfish Habitat	<input checked="" type="checkbox"/>				
 Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		<u>2, 4, 5, 6, 16</u>	<input checked="" type="checkbox"/>	
 Nutrient Removal	<input checked="" type="checkbox"/>		<u>4, 5, 8, 9, 11</u>	<input checked="" type="checkbox"/>	
 Production Export	<input checked="" type="checkbox"/>		<u>1, 2, 4, 7</u>		
 Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>				
 Wildlife Habitat	<input checked="" type="checkbox"/>		<u>1, 3, 4, 7, 8, 11, 13, 14, 16, 17, 18, 19, 20, 21</u>	<input checked="" type="checkbox"/>	<u>Very Active passerine &amp; small mammal use - good waterfowl potential</u>
 Recreation	<input checked="" type="checkbox"/>				<u>Private Property</u>
 Educational/Scientific Value	<input checked="" type="checkbox"/>		<u>1, 2, 10, 14</u>		
 Uniqueness/Heritage	<input checked="" type="checkbox"/>		<u>1, 5, 8, 11, 13, 17, 19, 24</u>		<u>Potential use by State endangered Blue-spotted Salamander</u>
 Visual Quality/Aesthetics	<input checked="" type="checkbox"/>		<u>2, 7, 9, 12</u>		
 ES Endangered Species Habitat	<input checked="" type="checkbox"/>		<u>2</u>		<u>Potential use by State endangered Blue-spotted Salamander</u>
Other					

Notes: \* Refer to backup list of numbered considerations.

# Wetland Function-Value Evaluation Form

Total area of wetland 1.70 Ac Human made? yes Is wetland part of a wildlife corridor? yes or a "habitat island"? yes  
 Adjacent land use Forest, Pond Distance to nearest roadway or other development 200' S to Lewisville  
 Dominant wetland systems present P&M IF/IE Contiguous undeveloped buffer zone present yes  
 Is the wetland a separate hydraulic system? yes If not, where does the wetland lie in the drainage basin? \_\_\_\_\_  
 How many tributaries contribute to the wetland? none Wildlife & vegetation diversity/abundance (see attached list) MIA Post-Construction Assessment Report

Wetland I.D. ONSW-2  
 Latitude 41.664445 Longitude -71.944039  
 Prepared by: JM (MIA) Date 11/15/13  
 Wetland Impact:  
 Type Fill Area 0.06 Ac  
 wetlands I & J  
 Evaluation based on:  
 Office ✓ Field ✓  
 Corps manual wetland delineation completed? Y ✓ N \_\_\_\_\_

Function/Value	Suitability Y N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓	2, 4, 15	✓	
Floodflow Alteration	✓	6		
Fish and Shellfish Habitat	✓			
Sediment/Toxicant Retention	✓	2, 4, 5, 6	✓	
Nutrient Removal	✓	4, 5, 8, 9, 11	✓	
Production Export	✓	1, 2, 4, 7		
Sediment/Shoreline Stabilization	✓			
Wildlife Habitat	✓	1, 2, 3, 4, 7, 8, 11, 13, 14, 16, 17, 18, 19, 20, 21	✓	Very Active Passerine & small mammal use
Recreation	✓			Private Property
Educational/Scientific Value	✓	1, 2, 10, 14		
Uniqueness/Heritage	✓	1, 5, 8, 11, 13, 17, 19, 24		Potential use by State endangered Blue-spotted Salamander
Visual Quality/Aesthetics	✓	2, 7, 9, 12		
ES Endangered Species Habitat	✓	2		Potential use by State endangered Blue-spotted Salamander
Other				

Notes: \* Refer to backup list of numbered considerations.

## **APPENDIX B**

### **Wetland Area Calculation**



Approximate Location of:

M&A Flagged Wetland (November 2013)

● M&A Wetland Delineation Data Plot (November 2013)



Source: Connecticut 2012 Multispectral Orthophotography

Lowe's Wetland Mitigation Assessment  
Plainfield, Connecticut

**MA** **MASON & ASSOCIATES, INC.**  
*Environmental Consulting & Projects*  
771 Plainfield Pike, North Scituate, Rhode Island 02857

## APPENDIX B WETLAND AREA CALCULATION OVERVIEW

Project No. 131004

Appendix B Figure 1



Approximate Location of:

- M&A Flagged Wetland (November 2013)
- M&A Wetland Delineation Data Plot (November 2013)



Source: Connecticut 2012 Multispectral Orthophotography

Lowe's Wetland Mitigation Assessment  
Plainfield, Connecticut

**MA** **MASON & ASSOCIATES, INC.**  
*Environmental Consulting & Projects*  
771 Plainfield Pike, North Scituate, Rhode Island 02857

## APPENDIX B WETLAND AREA CALCULATION DETAIL VIEW ONSW-1

Project No. 131004

Appendix B Figure 2



Approximate Location of:

- M&A Flagged Wetland (November 2013)
- M&A Wetland Delineation Data Plot (November 2013)



Source: Connecticut 2012 Multispectral Orthophotography

Lowe's Wetland Mitigation Assessment  
Plainfield, Connecticut

**MA** **MASON & ASSOCIATES, INC.**  
*Environmental Consulting & Projects*  
771 Plainfield Pike, North Scituate, Rhode Island 02857

**APPENDIX B**  
**WETLAND AREA CALCULATION**  
**DETAIL VIEW ONSW-2**

Project No. 131004

Appendix B Figure 3

**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: Lowe's NE Regional Distribution Center City/County: Plainfield/ Windham Sampling Date: 11/11/13  
Applicant/Owner: Lowe's Home Centers, Inc. State: CT Sampling Point: ONSW-1 WET  
Investigator(s): Joe McCue, Mason & Associates, Inc. Section, Township, Range: n/a  
Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): concave Slope (%): 1%  
Subregion (LRR or MLRA): LRR R Lat: 41.6601 Long: -71.9460 Datum: NAD83 State Plane CT  
Soil Map Unit Name: Sudbury sandy loam, 0 - 5% slopes NWI classification: PABHx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No ☒ (If no, explain in Remarks.)  
Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No ☒  
Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: (Explain alternative procedures here or in a separate report.) This wetland is a created wetland. Water levels are low due to lack of rainfall this fall. The mapped Sudbury soil map unit was mapped prior to the construction of this wetland. Soil map unit name from websoilsurvey.nrcs.usda.gov	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (minimum of two required)</b>
<b>Primary Indicators (minimum of one is required; check all that apply)</b>		_____ Surface Soil Cracks (B6)
_____ Surface Water (A1)	_____ Water-Stained Leaves (B9)	_____ Drainage Patterns (B10)
_____ High Water Table (A2)	_____ Aquatic Fauna (B13)	_____ Moss Trim Lines (B16)
_____ Saturation (A3)	_____ Marl Deposits (B15)	_____ Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Water Marks (B1)	_____ Hydrogen Sulfide Odor (C1)	_____ Crayfish Burrows (C8)
_____ Sediment Deposits (B2)	_____ Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
_____ Drift Deposits (B3)	_____ Presence of Reduced Iron (C4)	_____ Stunted or Stressed Plants (D1)
_____ Algal Mat or Crust (B4)	_____ Recent Iron Reduction in Tilled Soils (C6)	_____ Geomorphic Position (D2)
_____ Iron Deposits (B5)	_____ Thin Muck Surface (C7)	_____ Shallow Aquitard (D3)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	_____ Other (Explain in Remarks)	_____ Microtopographic Relief (D4)
_____ Sparsely Vegetated Concave Surface (B8)		_____ FAC-Neutral Test (D5)
<b>Field Observations:</b>		
Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____	
Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____		
Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Surface water present in the center of the wetland.  PABHx: Palustrine, Aquatic Bed, Permanently Flooded, Excavated (from <a href="http://www.fws.gov/Wetlands/Wetlands-Mapper.html">www.fws.gov/Wetlands/Wetlands-Mapper.html</a> )		

**VEGETATION – Use scientific names of plants.**

 Sampling Point: ONSW-1 WET

Tree Stratum (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status															
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
_____ = Total Cover				<b>Prevalence Index worksheet:</b> <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> </table> Prevalence Index = B/A = _____	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____ (A)	_____ (B)
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = _____																	
FACW species _____	x 2 = _____																	
FAC species _____	x 3 = _____																	
FACU species _____	x 4 = _____																	
UPL species _____	x 5 = _____																	
Column Totals: _____ (A)	_____ (B)																	
<b>Sapling/Shrub Stratum (Plot size: _____ )</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____  <div style="text-align: right;">_____ = Total Cover</div>				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
<b>Herb Stratum (Plot size: <u>R = 10'</u> )</b> 1. <i>Scirpus cyperinus</i> 38 Y OBL 2. <i>Schoenoplectus tabernaemontani</i> 20.5 Y OBL 3. <i>Typha angustifolia</i> 20.5 Y OBL 4. <i>Eupatorium perfoliatum</i> 10.5 FACW 5. <i>Juncus effusus</i> 3 OBL 6. <i>Polygonum sp.</i> 3 var. 7. <i>Carex lupunina</i> 3 OBL 8. <i>Phalaris arundinacea</i> 3 FACW 9. _____ 10. _____ 11. _____ 12. _____  <div style="text-align: right;">101.5 = Total Cover</div>					<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.													
<b>Woody Vine Stratum (Plot size: _____ )</b> 1. _____ 2. _____ 3. _____ 4. _____  <div style="text-align: right;">_____ = Total Cover</div>						<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____												
Remarks: (Include photo numbers here or on a separate sheet.)          																		

## SOIL

Sampling Point: ONSW-1 WET

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

### Hydric Soil Indicators:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) ( <b>LRR R,</b>
<input type="checkbox"/> Histic Epipedon (A2)	<b>MLRA 149B)</b>
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) ( <b>LRR R, MLRA 149B)</b>
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>LRR K, L)</b>
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input checked="" type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7) ( <b>LRR R, MLRA 149B)</b>	

### Indicators for Problematic Hydric Soils<sup>3</sup>:

☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)  
☐ Coast Prairie Redox (A16) (**LRR K, L, R**)  
☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)  
☐ Dark Surface (S7) (**LRR K, L**)  
☐ Polyvalue Below Surface (S8) (**LRR K, L**)  
☐ Thin Dark Surface (S9) (**LRR K, L**)  
☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)  
☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)  
☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)  
☐ Red Parent Material (F21)  
☐ Very Shallow Dark Surface (TF12)  
☒ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: refusal

Depth (inches): 20"

Hydric Soil Present? Yes ☒ No ☐

Remarks:

SL = Sandy Loam

This profile meets the minimum 12" thickness (A horizon) and color for indicator A12. The presence of redox features and the dominance of obligate wetland species indicate that this soil is and will continue to develop hydric soil indicators. I could not obtain depths greater than 20" to confirm the presence of a depleted or gleyed matrix below the thick dark surface.



# WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Lowe's NE Regional Distribution Center City/County: Plainfield/ Windham Sampling Date: 11/11/13  
 Applicant/Owner: Lowes' Home Centers, Inc. State: CT Sampling Point: ONSW-1 UPL  
 Investigator(s): Joe McCue, Mason & Associates, Inc. Section, Township, Range: n/a  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 1%  
 Subregion (LRR or MLRA): LRR R Lat: 41.6601 Long: -71.9462 Datum: NAD83 State Plane CT  
 Soil Map Unit Name: Sudbury sandy loam, 0 - 5% slopes NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No ✓ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No ✓  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>✓</u> If yes, optional Wetland Site ID: _____
Hydric Soil Present? Yes _____ No <u>✓</u>	
Wetland Hydrology Present? Yes _____ No <u>✓</u>	
Remarks: (Explain alternative procedures here or in a separate report.) The mapped Sudbury soil map unit was mapped prior to the construction of this wetland. Soil map unit name from websoilsurvey.nrcs.usda.gov	

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>✓</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>✓</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>✓</u> Depth (inches): _____ (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes _____ No <u>✓</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

**VEGETATION – Use scientific names of plants.**

 Sampling Point: ONSW-1 UPL

Tree Stratum (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
_____ = Total Cover																				
<b>Sapling/Shrub Stratum (Plot size: _____ )</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
<b>Herb Stratum (Plot size: <u>R = 10'</u> )</b>																				
1. <i>Festuca rubra (assumed)</i>	98	Y	FACU																	
2. <i>Andropogon gerardii</i>	85.5	Y	FACU																	
3. <i>Panicum dichotomiflorum</i>	3		FACW																	
4. <i>Asclepias syriaca</i>	3		UPL																	
5. <i>Verbascum thalpsus</i>	T		UPL																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
189.5 = Total Cover																				
<b>Woody Vine Stratum (Plot size: _____ )</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover																				
<b>Remarks: (Include photo numbers here or on a separate sheet.)</b>  Due to the time of year, a positive identification of the grass could not be obtained. It is assumed that the grass occurring in the data plot is red fescue. This plot is located in the upland grassland area.																				

## SOIL

Sampling Point: ONSW-1 UPL

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

### Hydric Soil Indicators:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) ( <b>LRR R,</b>
<input type="checkbox"/> Histic Epipedon (A2)	<b>MLRA 149B)</b>
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) ( <b>LRR R, MLRA 149B)</b>
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>LRR K, L)</b>
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7) ( <b>LRR R, MLRA 149B)</b>	

### Indicators for Problematic Hydric Soils<sup>3</sup>:

☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)  
☐ Coast Prairie Redox (A16) (**LRR K, L, R**)  
☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)  
☐ Dark Surface (S7) (**LRR K, L**)  
☐ Polyvalue Below Surface (S8) (**LRR K, L**)  
☐ Thin Dark Surface (S9) (**LRR K, L**)  
☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)  
☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)  
☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)  
☐ Red Parent Material (F21)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No ☒

Remarks:

SL = Sandy Loam

FS = Fine Sand

# WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Lowe's NE Regional Distribution Center City/County: Plainfield/ Windham Sampling Date: 11/4/13  
 Applicant/Owner: Lowe's Home Centers, Inc. State: CT Sampling Point: ONSW-2 WET  
 Investigator(s): Joe McCue, Mason & Associates, Inc. Section, Township, Range: n/a  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): concave Slope (%): 1%  
 Subregion (LRR or MLRA): LRR R Lat: 41.6644 Long: -71.9446 Datum: NAD83 State Plane CT  
 Soil Map Unit Name: Hinckley gravelly sandy loam, 15 - 45% slopes NWI classification: PEM1F/1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No ☒ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No ☒  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: (Explain alternative procedures here or in a separate report.) This wetland is a created wetland. Water levels are low due to the lack of rainfall this fall. The mapped Hinckley soil map unit was mapped prior to the construction of this wetland. Soil map unit name from websoilsurvey.nrcs.usda.gov	

## HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks: Surface water not present at data plot, but present in the center of the wetland.  PEM1F/1E: Palustrine, Emergent, Persistent, Semi-Permanently Flooded / Seasonally Flooded/Saturated (from <a href="http://www.fws.gov/Wetlands/Wetlands-Mapper.html">www.fws.gov/Wetlands/Wetlands-Mapper.html</a> )		



**VEGETATION – Use scientific names of plants.**

 Sampling Point: ONSW-2 WET

Tree Stratum (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status															
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
_____ = Total Cover				<b>Prevalence Index worksheet:</b> <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> </table> Prevalence Index = B/A = _____	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____ (A)	_____ (B)
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = _____																	
FACW species _____	x 2 = _____																	
FAC species _____	x 3 = _____																	
FACU species _____	x 4 = _____																	
UPL species _____	x 5 = _____																	
Column Totals: _____ (A)	_____ (B)																	
<b>Sapling/Shrub Stratum (Plot size: <u>R = 15'</u> )</b>																		
1. <u>Cornus alba</u>	<u>3</u>	<u>Y</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
2. <u>Cephalanthus occidentalis</u>	<u>3</u>	<u>Y</u>	<u>OBL</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
_____ = Total Cover																		
<b>Herb Stratum (Plot size: <u>R = 15'</u> )</b>																		
1. <u>Typha angustifolia</u>	<u>63</u>	<u>Y</u>	<u>OBL</u>	<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.														
2. <u>Schoenoplectus pungens</u>	<u>38</u>	<u>Y</u>	<u>OBL</u>															
3. <u>Schoenoplectus tabernaemontani</u>	<u>20.5</u>	_____	<u>OBL</u>															
4. <u>Scirpus cyperinus</u>	<u>10.5</u>	_____	<u>OBL</u>															
5. <u>Juncus effusus</u>	<u>3</u>	_____	<u>OBL</u>															
6. <u>Carex lurida</u>	<u>3</u>	_____	<u>OBL</u>															
7. <u>Scirpus expansus</u>	<u>3</u>	_____	<u>OBL</u>															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____															
12. _____	_____	_____	_____															
_____ = Total Cover																		
<b>Woody Vine Stratum (Plot size: _____ )</b>																		
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
_____ = Total Cover																		
Remarks: (Include photo numbers here or on a separate sheet.)																		

## SOIL

Sampling Point: ONSW-2 WET

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

### Hydric Soil Indicators:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) ( <b>LRR R,</b>
<input type="checkbox"/> Histic Epipedon (A2)	<b>MLRA 149B)</b>
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) ( <b>LRR R, MLRA 149B)</b>
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>LRR K, L)</b>
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input checked="" type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7) ( <b>LRR R, MLRA 149B)</b>	

### Indicators for Problematic Hydric Soils<sup>3</sup>:

☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)  
☐ Coast Prairie Redox (A16) (**LRR K, L, R**)  
☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)  
☐ Dark Surface (S7) (**LRR K, L**)  
☐ Polyvalue Below Surface (S8) (**LRR K, L**)  
☐ Thin Dark Surface (S9) (**LRR K, L**)  
☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)  
☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)  
☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)  
☐ Red Parent Material (F21)  
☐ Very Shallow Dark Surface (TF12)  
☒ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: refusal

Depth (inches): 20"

Hydric Soil Present? Yes ☒ No ☐

Remarks:

SL = Sandy Loam

This profile meets the minimum 12" thickness (A horizon) and color for indicator A12. The presence of redox features and the dominance of obligate wetland indicator species indicate that this soil is and will continue to develop hydric soil indicators. I could not obtain depths greater than 20" to confirm the presence of a depleted or gleyed matrix below the thick dark surface.

# WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Lowe's NE Regional Distribution Center City/County: Plainfield/ Windham Sampling Date: 11/4/13  
 Applicant/Owner: Lowes' Home Centers, Inc. State: CT Sampling Point: ONSW-2 UPL  
 Investigator(s): Joe McCue, Mason & Associates, Inc. Section, Township, Range: n/a  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 1%  
 Subregion (LRR or MLRA): LRR R Lat: 41.6644 Long: -71.9446 Datum: NAD83 State Plane CT  
 Soil Map Unit Name: Hinckley gravelly sandy loam, 3 - 15% slopes NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No ✓ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No ✓  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>✓</u> If yes, optional Wetland Site ID: _____
Hydric Soil Present? Yes _____ No <u>✓</u>	
Wetland Hydrology Present? Yes _____ No <u>✓</u>	
Remarks: (Explain alternative procedures here or in a separate report.) The mapped Hinckley soil map unit was mapped prior to the construction of this wetland. Soil map unit name from websoilsurvey.nrcs.usda.gov	

## HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>✓</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>✓</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>✓</u> Depth (inches): _____ (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes _____ No <u>✓</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: This data point is located on the hillside.		

**VEGETATION – Use scientific names of plants.**

 Sampling Point: ONSW-2 UPL

Tree Stratum (Plot size: <u>R = 30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Quercus alba</u>	<u>3</u>	<u>Y</u>	<u>FACU</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>3</u> = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>R = 15'</u> )</b>				
1. <u>Rosa multiflora</u>	<u>3</u>	<u>Y</u>	<u>FACU</u>	<b>Prevalence Index worksheet:</b> <div style="display: flex; justify-content: space-between;"> <span>Total % Cover of:</span> <span>Multiply by:</span> </div> OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>3</u> = Total Cover				
<b>Herb Stratum (Plot size: <u>R = 10'</u> )</b>				
1. <u>Artemisia vulgaris</u>	<u>38</u>	<u>Y</u>	<u>UPL</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Panicum dichotomiflorum</u>	<u>20.5</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Solanum carolinense</u>	<u>3</u>	_____	<u>FACU</u>	
4. <u>Solidago sp.</u>	<u>3</u>	_____	<u>var.</u>	
5. <u>Setaria sp.</u>	<u>3</u>	_____	<u>var.</u>	
6. <u>Festuca rubra (assumed)</u>	<u>3</u>	_____	<u>FACU</u>	
7. <u>unidentified grass</u>	<u>3</u>	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>73.5</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____ )</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
  
 Due to the time of year, several species were not positively identified. However, these species only account for 3% absolute cover in the data plot.

## SOIL

Sampling Point: ONSW-2 UPL

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

### Hydric Soil Indicators:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) ( <b>LRR R,</b>
<input type="checkbox"/> Histic Epipedon (A2)	<b>MLRA 149B)</b>
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) ( <b>LRR R, MLRA 149B)</b>
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>LRR K, L</b> )
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7) ( <b>LRR R, MLRA 149B)</b>	

### Indicators for Problematic Hydric Soils<sup>3</sup>:

☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)  
☐ Coast Prairie Redox (A16) (**LRR K, L, R**)  
☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)  
☐ Dark Surface (S7) (**LRR K, L**)  
☐ Polyvalue Below Surface (S8) (**LRR K, L**)  
☐ Thin Dark Surface (S9) (**LRR K, L**)  
☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)  
☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)  
☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)  
☐ Red Parent Material (F21)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if observed):

Type: Refusal - Gravel

Depth (inches): 13"

Hydric Soil Present? Yes \_\_\_\_\_ No ☒

Remarks:


SL = Sandy Loam

## **APPENDIX C**

### **Comparison of Constructed and Proposed Wetlands**



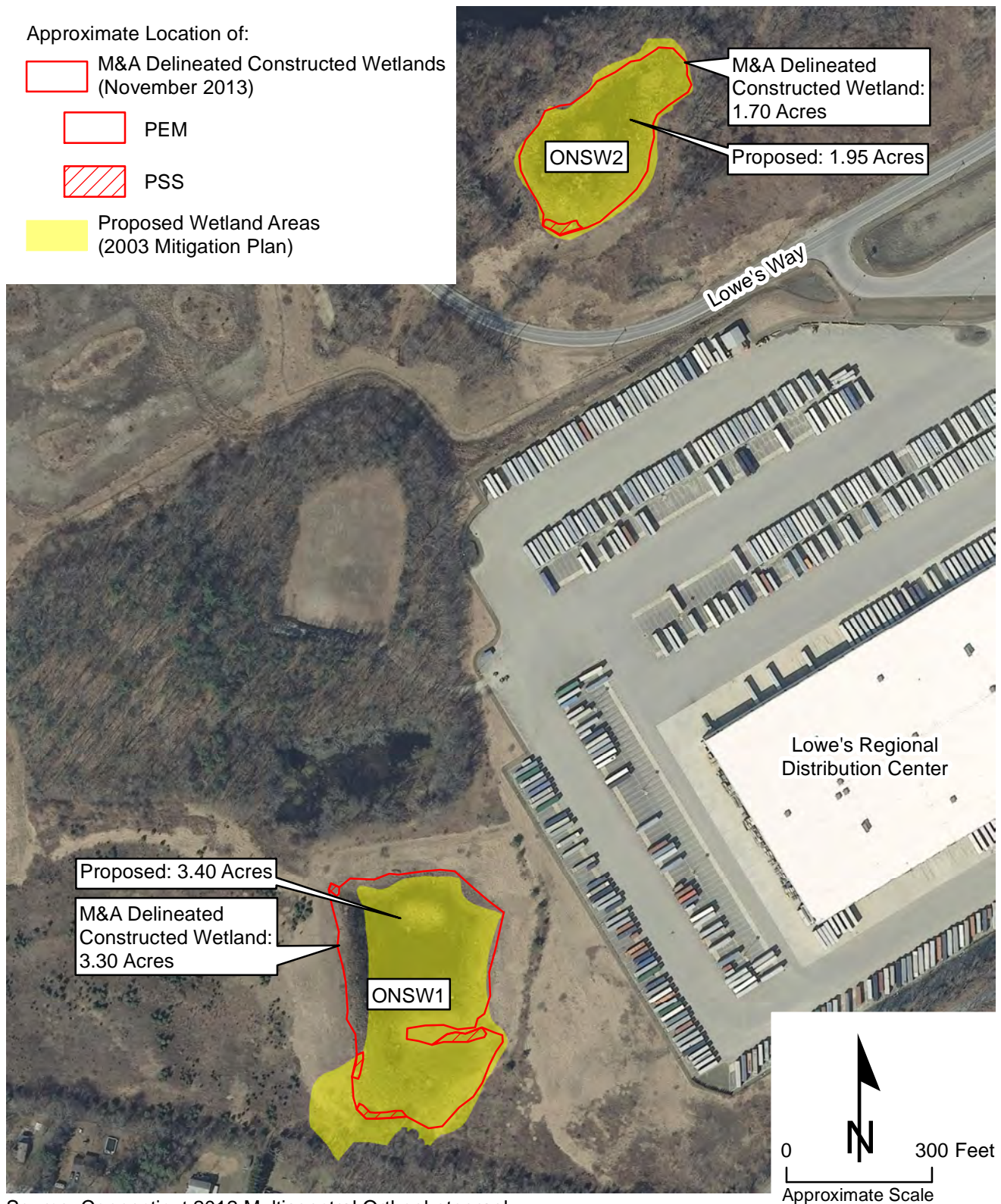
Approximate Location of:

 M&A Delineated Constructed Wetlands (November 2013)

 PEM

 PSS

 Proposed Wetland Areas (2003 Mitigation Plan)



Source: Connecticut 2012 Multispectral Orthophotography

Lowe's Wetland Mitigation Assessment  
Plainfield, Connecticut

**MA** **MASON & ASSOCIATES, INC.**  
*Environmental Consulting & Projects*  
771 Plainfield Pike, North Scituate, Rhode Island 02857

## APPENDIX C COMPARISON OF CONSTRUCTED AND PROPOSED WETLANDS

Project No. 131004

Appendix C Figure 1

## **APPENDIX D**

### **Site Photographs**





T-1 Transect at ONSW-1 Looking North (November 11, 2013).  
(Photo #10, 2009 Annual Monitoring Report, Normandeau)



T-2 Transect at ONSW-1 Looking North (November 11, 2013).  
(Photo #9, 2009 Annual Monitoring Report, Normandeau)





T-3 Transect at ONSW-1 Looking North (November 11, 2013).  
(Photo #8, 2009 Annual Monitoring Report, Normandeau)



Reforested Hillside West of ONSW-1 (November 11, 2013).  
(Photo #5, 2009 Annual Monitoring Report, Normandeau)





T-1 Transect at ONSW-2 Looking Northeast (November 4, 2013).  
(Photo #13, 2009 Annual Monitoring Report, Normandeau)



T-2 Transect at ONSW-2 Looking Northeast (November 4, 2013).  
(Photo #14, 2009 Annual Monitoring Report, Normandeau)





T-3 Transect at ONSW-2 Looking Northeast (November 4, 2013).  
(Photo #15, 2009 Annual Monitoring Report, Normandeau)



ONSW-2 From Forested Hillside (November 4, 2013).  
(Photo #'s 6 & 16, 2009 Annual Monitoring Report, Normandeau)





Looking at IB-1 Basin Looking North From South Peninsula in IB-1  
(November 4, 2013).



Looking at IB-1 Basin Looking South From North Peninsula in IB-1 (November 4, 2013).  
(Photo #1, 2009 Annual Monitoring Report, Normandeau)